WHAT IS CLAIMED IS:

1. A device for separating fluid from a biologic sample, the sample having a fluid component and a non-fluid component, the device comprising a plurality of microspheres disposed in abutting relation and forming interstitial spaces therebetween, whereby when the microspheres are disposed in fluid communication with the biologic sample, the interstitial spaces connect to form a plurality of transiently forming capillary channels and the non-fluid component is separated from the fluid component by capillary flow of the fluid component through the transiently forming capillary channels.

2. The device of claim 1 further comprising a plurality of smaller microspheres interspersed among a plurality of larger microspheres, the plurality of larger microspheres being disposed in substantially abutting relation to form interstitial spaces therebetween, the plurality of smaller microspheres being sufficiently small in size such that they can occupy the interstitial spaces formed by the larger microspheres and be carried forward by the fluid component as it flows through the transiently forming capillary channels.

3. The device of claim 2 wherein the smaller microspheres are labeled with at least one label.

4. The device of claim 3 wherein the label is selected from the group consisting of radioactive labels, florescent labels, metals, proteins, peptides, antigens and antibodies.

5. The device of claim 3 wherein the biologic fluid contains an analyte and the label is an antibody have a specificity directed to the analyte.

6. The device of claim 2 wherein the plurality of smaller microspheres further comprises a plurality of groups of microspheres each group impregnated with a different label and each group interspersed among the larger microspheres in a separate zone of the larger microspheres.

7. The device of claim 1 wherein the microspheres are of different diameters.

8. The device of claim 1 wherein the microspheres are of substantially the same diameter.

9. The device of claim 1 wherein sizes of the microspheres are selected according to a viscosity of the sample.

10. The device of claim 1 wherein the microspheres are bundled in a fluid-permeable material.

11. The device of claim 1 wherein the microspheres are maintained in abutting relation by a surface tension of the fluid or by drying the microspheres.

12. The device of claim 1 comprising fluid-conveying means for conveying the sample into fluid communication with the microspheres.

13. The device of any one of claims 1 to 12 wherein the biologic sample is blood and the fluid component is plasma.

14. An assay device for analyzing a biologic sample, the sample having a fluid component and a non-fluid component, comprising:

at least one chamber defined by first and second opposed surfaces spaced a distance apart, the distance being such that the fluid component is capable of being drawn into the chamber by capillary action through at least one fluid entrance;

at least one reagent disposed within the chamber; and

a dynamic capillary filter comprising a plurality of microspheres arranged in abutting relation and forming interstitial spaces therebetween, said microspheres being disposed in fluid communication with the fluid entrance to the chamber,

whereby when said fluid sample contacts said dynamic capillary filter, the interstitial spaces between the microspheres form a plurality of transiently forming capillary channels and the non-fluid component is separated from the fluid component of the sample by capillary flow of the fluid component through the interstitial spaces and the fluid component is drawn into the fluid entrance by capillary action to thereby substantially fill the capillary chamber with a predetermined volume of said fluid component.

15. The assay device of claim 14 comprising fluid-conveying means for conveying the sample into fluid communication with the fluid entrance.

16. The assay device of claim 14 comprising a sample shelf adjacent to the fluid entrance, wherein the microspheres are disposed on the sample shelf.

17. The assay device of claim 14 further comprising a plurality of smaller microspheres interspersed among a plurality of larger microspheres, the plurality of smaller microspheres labeled with at least one label and occupying the interstitial spacing between the larger microspheres such that the label is released into the fluid as the fluid flows through the interstitial spacing between the larger microspheres.

18. The assay device of claim 17 comprising a plurality of groups of smaller microspheres each impregnated with a different label and interspersed with the larger microspheres in separate zones of the larger microspheres.

19. The assay device of claim 14 in which the reagent is disposed in a strip adhered to an interior surface of the capillary chamber.

20. The assay device of claim 19 in which the reagent comprises at least one antibody printed or coated onto the interior surface of the capillary chamber.

21. The assay device of claim 14 in which a plurality of reagents are disposed within the capillary chamber for conducting a plurality of assays on the fluid sample.

22. The assay device of claim 21 in which the reagents include proteins, antibodies, nucleic acids, lipids, steroids, heterocyclic compounds, drugs, or any combination thereof.

23. The assay device of claim 14 in which a plurality of capillary chambers are provided for conducting a plurality of assays on one or more fluid samples.

24. The assay device of claim 14 further comprising an analyzer for detecting a proportion of the reagent which binds to an analyte in the fluid sample.

25. The assay device of claim 24 further comprising a calibration strip for setting a baseline for calibration of the analyzer.

26. The assay device of claim 14 or 24 further comprising an indicator containing patient identification information to be associated with results of the assay.

27. The assay device of claim 26 in which the indicator comprises a bar code and the analyzer comprises a bar code reader.

28. The assay device of claim 24 in which the analyzer comprises a spectrometer.

29. The assay device of claim 24 wherein the analyzer is capable of transmitting data digitally over digital transmission systems.

30. The assay device of claim 14 or 24 comprising a mask for overlaying the biochip, the mask being transparent over the reagent and opaque over a portion of the biochip surrounding the reagent.

31. A method of separating a fluid component from a non-fluid component of a biologic sample, the method comprising the steps of

(a) bringing the biologic sample into fluid communication with a plurality of microspheres disposed in abutting relation and forming interstitial spaces therebetween, said interstitial spaces connecting to forming a plurality of transiently forming capillary channels in the presence of said biologic sample, and

(b) collecting the fluid component as it is separated from the non-fluid component by capillary flow of the fluid component through the transiently forming capillary channels.

32. The method of claim 31 wherein the biologic sample is blood and the fluid component is plasma.

33. The method of claim 31 or 32 further comprising a plurality of smaller microspheres interspersed among a plurality of larger microspheres, the plurality of smaller microspheres labeled with at least one label and occupying the interstitial spacing between tile larger microspheres such that the label is released into the fluid as the fluid flows through the interstitial spacing between the larger microspheres.

34. The method of claim 31 or 32 in which a plurality of groups of smaller microspheres each impregnated with a different label are interspersed with the larger microspheres in separate zones of the larger microspheres.

35. The method of claim 31 or 32 wherein the microspheres are of different diameters.

36. The method of claim 31 or 32 wherein the microspheres are of substantially the same diameter.

37. The method of claim 31 or 32 wherein the microspheres are bundled in a fluid-permeable material.

38. The method of claim 31 or 32 wherein the microspheres are maintained in abutting relation by a surface tension of the plasma or by drying the microspheres.

39. The method of claim 31 or 32 in which a fluid-conveying means is provided to convey the biologic sample into fluid communication with the microspheres.

40. A method of conducting an assay utilizing a device for analyzing a biologic sample, the sample having a fluid component and a non-fluid component, the device comprising a capillary chamber, at least one reagent disposed within the capillary chamber, and a dynamic capillary filter disposed in fluid communication with said chamber, comprising the steps of:

(a) conveying the fluid sample into fluid communication with the dynamic capillary filter such that the fluid component is separated from the non-fluid component and the fluid component is drawn into the capillary chamber by capillary action and reacts with the reagent, and

(b) analyzing the reagent to determine whether the reagent changes in response to an analyte in the fluid sample.

41. The method of claim 40 further comprising the step of analyzing the reagent to determine a proportion of the reagent which binds to the sample.

42. The method of claim 41 further comprising the step of determining a volume of a fluid sample which substantially fills the capillary chamber from a known volume of the capillary chamber.

43. The method of claim 40, wherein said dynamic capillary filter comprises a plurality of microspheres disposed in abutting relation and forming interstitial spaces therebetween, whereby when the microspheres are disposed in fluid communication with the biologic sample, the interstitial spaces connect to form a plurality of transiently forming capillary channels and the non-fluid component is separated from the fluid component by capillary flow of the fluid component through the transiently forming capillary channels.

44. The method of claim 43 wherein the biologic sample is blood and the fluid component is plasma.

45. The method of claim 40 in which the reagent is disposed in a strip adhered to an interior surface of the capillary chamber.

46. The method of claim 45 in which the reagent comprises a selected antibody printed onto the interior surface of the capillary chamber.

47. The method of claim 45 in which a plurality of reagents are disposed within the capillary chamber for conducting a plurality of assays on the fluid sample.

48. The method of claim 46 in which the reagents include proteins and antibodies.

49. The method of claim 47 in which the reagents include proteins, antibodies, nucleic acids, lipids, steroids, heterocyclic compounds, drugs of abuse or any combination thereof.

50. The method of claim 40 in which a plurality of capillary chambers are provided for conducting a plurality of assays on one or more fluid samples.

51. The method of claim 40 further comprising the step of calibrating the analyzer utilizing a calibration strip imprinted on the biochip for setting a baseline.

52. The method of claim 40 further comprising the step of associating with results of the assay patient identification information contained in an indicator affixed to the biochip.

53. The method of claim 52 in which the indicator comprises a bar code.

54. The method of claim 40 further comprising the step of recording results of the assay in a computer database.

55. The method of claim 54 further comprising the step of compiling data from a plurality of assays in the database.

56. The method of claim 54 further comprising the step of applying a trained neural network algorithm to the data to generate a profile of one or more selected disorders.

57. The method of claim 55 further comprising the step of applying a receiver operating characteristic analysis to the data to determine a statistical significance of the data.

58. The method of claim 56 further comprising the step of applying a receiver operating characteristic analysis to the data to determine a statistical significance of the data.

59. The method of claim 40 further comprising, before the step of analyzing the reagent to determine whether the reagent binds to an analyte in the fluid sample, the step of removing the fluid sample from the capillary chamber after a desired time interval.

60. The method of claim 59 in which a wick or a capillary is brought into fluid communication with the fluid sample to remove the fluid sample from the capillary chamber.

61. A method of detecting an analyte in a fluid component of a biologic sample, the sample having, a fluid component and a non-fluid component, the method comprising the steps of,

(a) bringing the biologic sample into fluid communication with a dynamic capillary filter, the capillary filter comprising a plurality of microspheres disposed in

abutting relation and forming interstitial spaces therebetween, said interstitial spaces connecting to forming a plurality of transiently forming capillary channels in the presence of said biologic sample, thereby separating the fluid component from the non-fluid component,

(b) detecting the analyte in the fluid component if the analyte is present,

(c) bringing the fluid component into contact with a nitrocellulose chromatography strip for separation on the nitrocellulose chromatography strip.

62. The method according to claim 61 wherein the analyte is detected in step (b) by bringing the fluid component into fluid communication with a nitrocellulose strip, wherein the nitrocellulose strip is impregnated with an analyte specific label, the label binding to analyte present in the fluid component of the sample.

63. The method according to claim 61 wherein the analyte is detected in step (b) by bringing the fluid component into fluid communication with a second group of microspheres, the second group of microspheres are impregnated with an analyte specific label, the label binding to analyte present in the fluid component of the sample.

64. A device for separating fluid from a biologic sample, the sample having a fluid component and a non-fluid component, the device comprising a plurality of particles disposed in abutting relation and forming interstitial spaces therebetween, whereby when the particles are disposed in fluid communication with the biologic sample, the interstitial spaces connect to form a plurality of transiently forming capillary channels and the non-fluid component is separated from the fluid component by capillary flow of the fluid component through the transiently forming capillary channels.

65. The device of claim 64 wherein the plurality of particles are non-uniform in shape.

66. The device of claim 64 wherein the plurality of particles are of non-uniform size.

67. The device of claim 64 wherein the plurality of particles are of non-uniform shape and size.

68. The device of claim 66 wherein the particles are silica grains.

69. An assay device for analyzing a biologic sample, the sample having a fluid component and a non-fluid component, comprising:

at least one chamber defined by first and second opposed surfaces spaced a distance apart, the distance being such that the fluid component is capable of being drawn into the chamber by capillary action through at least one fluid entrance;

at least one reagent disposed within the chamber; and

a dynamic capillary filter comprising a plurality of particles arranged in abutting relation and forming interstitial spaces therebetween, said particles being disposed in fluid communication with the fluid entrance to the chamber,

whereby when said fluid sample contacts said dynamic capillary filter, the interstitial spaces between the particles form a plurality of transiently forming capillary channels and the non-fluid component is separated from the fluid component of the sample by capillary flow of the fluid component through the interstitial spaces and the fluid component is drawn into the fluid entrance by capillary action to thereby substantially fill the capillary chamber with a predetermined volume of said fluid component.

70. The assay device of claim 69 comprising a sample shelf adjacent to the fluid entrance, wherein the particles are disposed on the sample shelf.

71. The assay device of claim 70 wherein the particles are silica grains.

72. A method of separating a fluid component from a non-fluid component of a biologic sample, the method comprising the steps of:

(a) bringing the sample into fluid communication with a plurality of particles disposed in abutting relation and forming therebetween a plurality of interstitial spaces, said interstitial spaces connecting to form a plurality of transiently forming capillary channels in the presence of said biologic sample, and

(b) collecting the fluid component as it is separated from the non-fluid component by capillary flow of the fluid component through the transiently forming capillary channels.

73. The method of claim 72 wherein the particles are of non-uniform size and/or shape.

74. The method of claim 72 or 73 wherein the particles are silica grains.

75. The method of claim 40, wherein said dynamic capillary filter comprises a plurality of particles disposed in abutting relation and forming interstitial spaces therebetween, whereby when the particles are disposed in fluid communication with the biologic sample, the interstitial spaces connect to form a plurality of transiently forming capillary channels and the non-fluid component is separated from the fluid component by capillary flow of the fluid component through the transiently forming capillary channels.

76. The method of claim 75 wherein the particles are silica grains.

77. A method of detecting an analyte in a fluid component of a biologic sample, the sample having a fluid component and a non-fluid component, the method comprising the steps of:

(a) bringing the sample into fluid communication with a dynamic capillary filter, the dynamic capillary filter comprising a plurality of particles disposed in abutting relation and forming interstitial spaces therebetween, said interstitial spaces connecting to form a plurality of transiently forming capillary channels in the presence of said biologic sample, thereby separating the fluid component from the non-fluid component,

(b) detecting the analyte in the fluid component if the analyte is present,

(c) bringing the fluid component into contact with a nitrocellulose chromatography strip for separation on the nitrocellulose strip.

(a) bringing the sample into fluid communication with a capillary filter, the capillary filter comprising a plurality of particles disposed in abutting relation and

forming therebetween a plurality of interstitial spaces which connect to comprise capillary channels, thereby separating the fluid component from the non-fluid component,

(b) detecting the analyte in the fluid component if the analyte is present,

(c) bringing the fluid component into contact with a nitrocellulose chromatography strip for separation on the nitrocellulose chromatography strip.

78. The method of claim 77 wherein the particles are silica grains.

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